

1. (Twice Amended) A sensor with a movable microstructure, comprising a sensitive element formed in a first chip of semiconductor material for producing an electrical signal dependent on a movement of at least one movable microstructure relative to a surface of the first chip, the sensitive element being enclosed in a hollow hermetic structure formed by a second chip of semiconductor material attached to the first chip of semiconductor material over the sensitive element, and a processing circuit for processing said electrical signal formed in [a] the second chip of semiconductor material and in electrical connection with the electrical signal produced by the sensitive element formed in the first chip, the hollow hermetic structure including a metal wall disposed on a surface of the first chip around the sensitive element, the second chip being fixed to said wall.

2. (Amended) The sensor according to claim 1 wherein the metal wall is comprised substantially of nickel.

3. (Amended) The sensor according to claim 1, further comprising at least one first conductive pad formed on the surface of the first chip within the hollow hermetic structure and connected electrically to the sensitive element, each at least one first conductive pad being connected to a second, facing conductive pad formed on a surface of the second chip for transmitting the electrical signal to the processing circuit.

4. (Amended) The sensor according to claim 3, further comprising at least one third conductive pad formed on the surface of the first chip within the hollow hermetic structure, each at least one third pad being connected to a fourth, facing conductive pad formed on the surface of the second chip for receiving an electrical signal processed by the processing circuitry.

5. (Amended) The sensor according to claim 4, further comprising at least one fifth conductive pad formed on the surface of the first chip outside the hollow hermetic structure, each at least one fifth pad being connected electrically to a corresponding sixth pad for transmitting the processed electrical signal outside of the sensor.

6. (Amended) The sensor according to claim 1 wherein the sensor comprises an inertial sensor.

7. An electronic device comprising the sensor according to claim 1 and a plastic package in which the sensor is encapsulated.

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12. (Twice Amended) A sensor comprising:
a first chip of semiconductor material;
a sensor element having a movable microstructure, the sensor element [being] supported by the first chip and [being] structured to generate a first signal in response to a movement of the microstructure relative to the first chip;

a second chip of semiconductor material covering the sensor element and configured to receive the first signal, the second chip of semiconductor material comprising a processing circuit electrically coupled to the sensor element to receive the first signal, the processing circuit structured to process the first signal and generate a second signal based on the first signal; and

a wall formed on the first chip and surrounding the sensor element and connecting the first chip to the second chip, the wall defining a hermetically sealed chamber between the first chip and the second chip and enclosing the sensor element.

13. (Amended) The sensor according to claim 12 wherein the wall is comprised of a metal.

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10-15. (Twice Amended) The sensor according to claim [14] ⁸~~12~~ wherein the processing circuit is formed in the second chip.

16. (Amended) The sensor according to claim 12, further comprising:
a plurality of conductive pads connected between the first chip and the second
chip; and
a low resistance diffusion in the first chip between the sensor element and the
pads.

12. ~~17.~~ (Twice Amended) The sensor according to claim [14] ~~16~~¹¹, further
comprising at least one output terminal outside the sealed chamber and coupled to the processing
circuit to receive the second signal.

18. (Amended) The sensor according to claim 12 wherein the sensor element
comprises an inertial sensor.

19. (Amended) The sensor according to claim 12 wherein the sensor element
comprises a resonant sensor.

20. (Amended) The sensor according to claim 12 wherein the sealed chamber
encloses a gas at a pressure below atmospheric pressure.

REMARKS

Claims 1-7, 12, 13, and 15-20 remain in the Application. Claim 14 has been
cancelled, and claims 1, 12, 15, and 17 have been amended.

In the second Office Action mailed July 19, 2000, the Examiner rejected claims 1-
7 and 12-20 under 35 U.S.C. § 102(b) as anticipated by WO96/39632 ("Martin et al."), and
alternatively as anticipated by U.S. Patent No. 5,438,859 ("Yamashita et al.").

Applicants respectfully disagree with the bases for the rejections and request
reconsideration on further examination of the claims.

As described more fully in the Specification on file in the above-referenced
application, the disclosed embodiment of the present invention is directed to a hermetically-